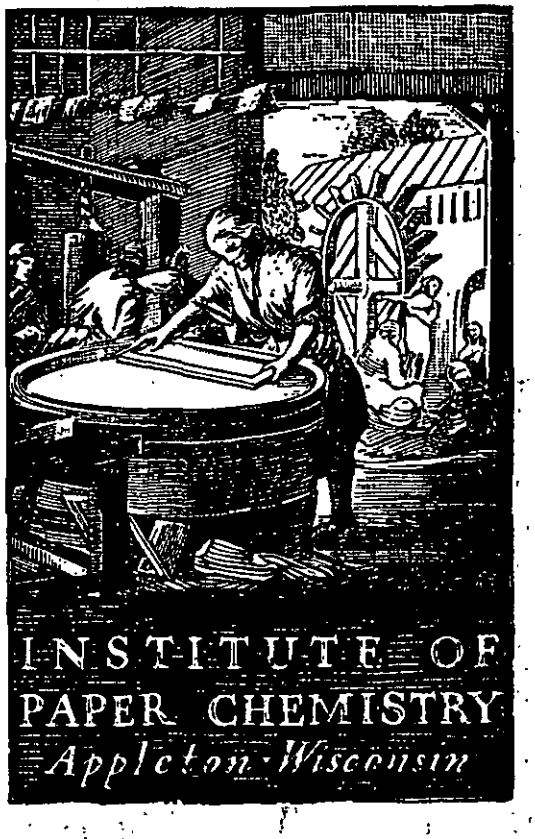

CONTINUOUS BASELINE STUDY

Project 1108-13

Report 176

A Progress Report

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

April 1, 1962

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS BASELINE STUDY

Project 1108-13

Report 176

A Progress Report

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

April 1, 1962

TABLE OF CONTENTS

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS BASELINE STUDY

INTRODUCTION

As requested by the Technical Committee of the Fourdrinier Kraft Board Institute, Inc., the reports pertinent to the continuous baseline study on 42-lb. fourdrinier kraft linerboard are now being prepared by The Institute of Paper Chemistry on a bimonthly basis instead of the previous monthly basis. This new system was initiated on August 1, 1961. This report is the fourth under the new system and presents results obtained during the months of February and March, 1962.

PRESENTATION AND DISCUSSION OF TEST RESULTS

Each sample lot received for evaluation during February and March was evaluated for basis weight, caliper, bursting strength, and Elmendorf tearing strength. The average strength results for each mill may be seen in Table I and are graphically presented in Fig. 1 to 5. In addition to a comparison of the current mill averages for the various tests, Table I also shows the current F.K.I. averages, the cumulative F.K.I. averages, and the F.K.I. indexes. For each test, the current mill average represents the average obtained on all sample lots evaluated during a given period, the current F.K.I. average represents the average of the current mill averages, and the cumulative F.K.I. average represents the average of the current F.K.I. averages for the previous twelve months excluding the current period. The F.K.I. index expressed in per cent is the ratio of the current F.K.I. average to the cumulative F.K.I average.

In Table II, a tabulation of the number of sample lots submitted by each mill during February and March is shown.

Supplementary to the basis weight data given in Table I, a tabulation is given in Table III of the amount by which the basis weight average for each mill varies from the 42-lb. specification set forth in Rule 41.

Shown below from Table I are the maximum and minimum current mill averages for each test and also the current and cumulative F.K.I. averages

TABLE I

SUMMARY OF COMPOSITE MILL AVERAGES--FEBRUARY AND MARCH, 1962

Mill	Basis Weight, lb.	Caliper, points	Bursting Strength, p.s.i. gage	Elmendorf Tear, g./sheet In Machine	Elmendorf Tear, g./sheet Cross Machine
A	No samples submitted.				
B	No samples submitted.				
C	42.6	13.3	105	316	363
D	43.7	12.9	113	324	387
E	No samples submitted.				
F	43.1	12.6	110	294	355
G	43.6	12.9	110	364	405
H	42.2	12.4	112	293	366
I	42.6	12.9	115	298	346
J	43.0	13.5	110	317	388
K	42.7	12.0	111	297	340
L	43.8	12.5	111	289	354
M	42.9	12.0	108	359	393
N	43.4	12.7	107	351	404
O	43.8	12.2	111	338	392
P	42.8	13.0	114	322	367
Q	42.2	12.2	114	337	362
S	42.3	13.3	116	273	326
T	42.8	12.5	117	317	358
U	42.0	12.2	115	287	333
Current FKI Average.	42.9	12.7	112	316	367
Cumulative FKI Average:	43.0	12.6	111	325	370
FKI Index, %	99.8	100.8	100.9	97.2	99.2

TABLE II

NUMBER OF SAMPLE LOTS SUBMITTED BY EACH MILL
DURING FEBRUARY AND MARCH, 1962

Mill Code	Number of Sample Lots
A	0
B	0
C	8
D	8
E	0
F	16
G	7
H	6
I	9
J	9
K	9
L	9
M	7
N	7
O	4
P	6
Q	6
S	2
T	8
U	8
Total	129

TABLE III

PERCENTAGE DEVIATION FROM 42-LB. BASIS WEIGHT SPECIFICATION

Mill Code	
A	--
B	--
C	+1.4
D	+4.0
E	--
F	+2.6
G	+3.8
H	+0.5
I	+1.4
J	+2.4
K	+1.7
L	+4.3
M	+2.1
N	+3.3
O	+4.3
P	+1.9
Q	+0.5
S	+0.7
T	+1.9
U	0.0

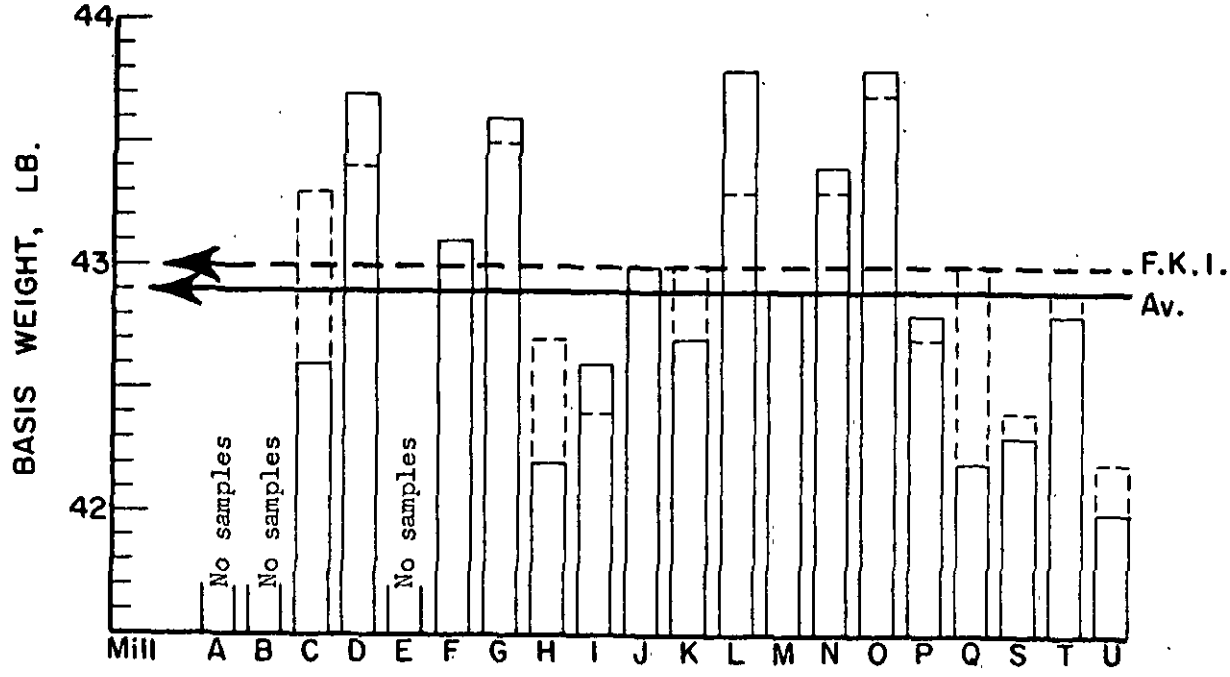

Figure 1. Comparison of Basis Weight Results

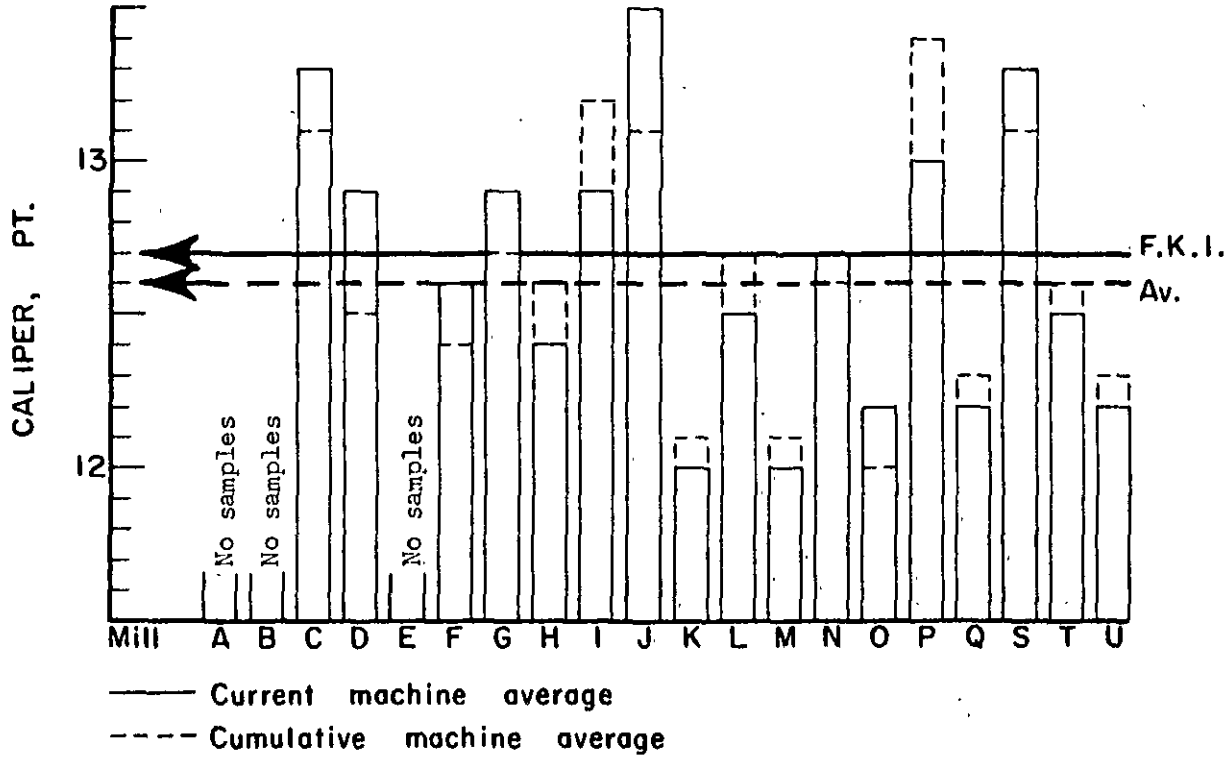

Figure 2. Comparison of Caliper Results

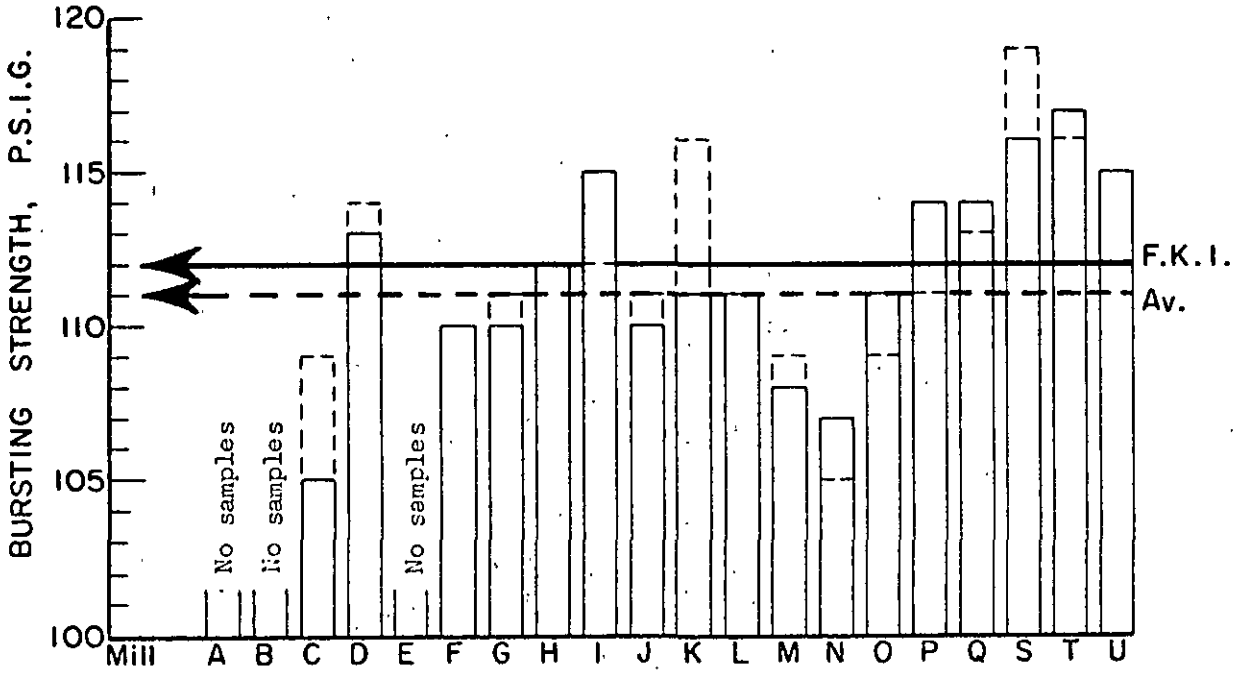

Figure 3. Comparison of Bursting Strength Results

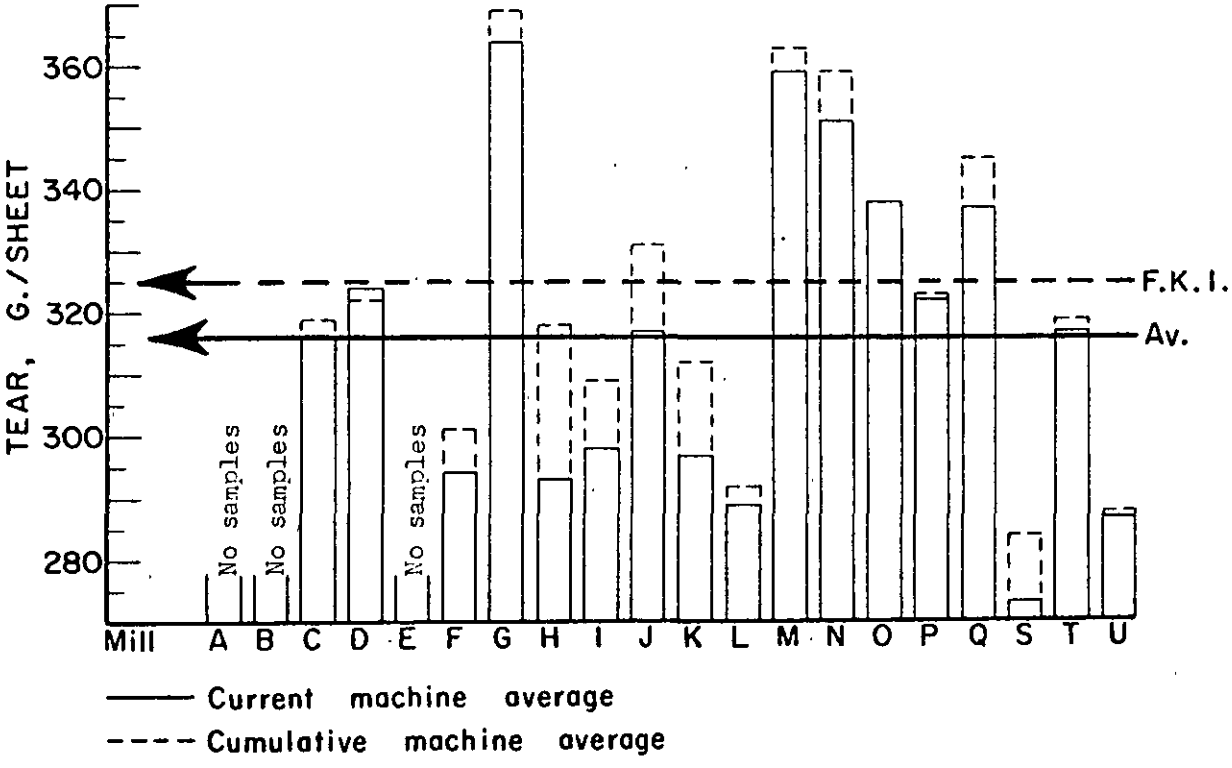

Figure 4. Comparison of Machine-Direction Tear Results

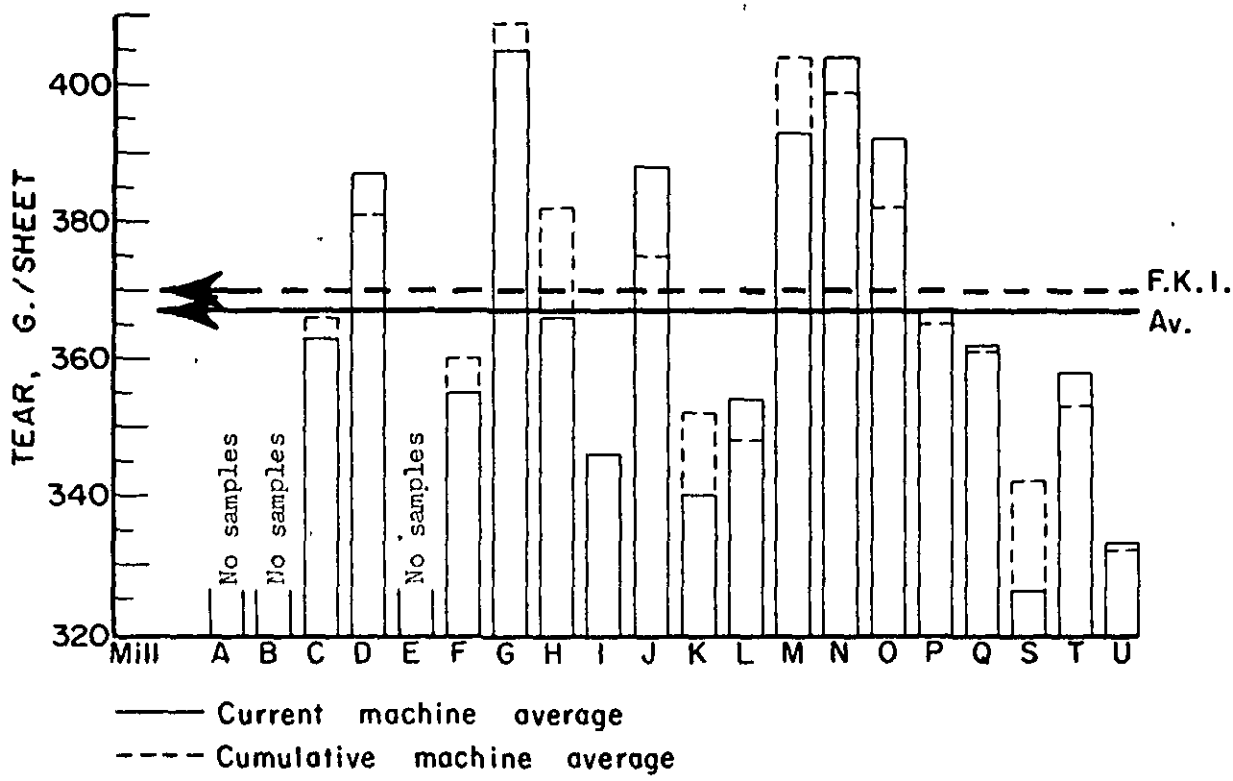

Figure 5. Comparison of Cross-Machine Direction Tear Results

Test	Current Mill Averages Max.	Min.	F.K.I. Averages Current	Cumulative
Basis weight, lb.	43.8	42.0	42.9	43.0
Caliper, points	13.5	12.0	12.7	12.6
Bursting strength, p.s.i. gage	117	105	112	111
Machine direction Elmendorf tear, g./sheet	364	273	316	325
Cross-machine direction Elmendorf tear, g./sheet	405	326	367	370

The test results obtained at the Institute and at the mill during February and March are given alphabetically in Tables IV to XXIII for each mill. Included in each of these tables are the maximum, minimum and average test data obtained at the Institute on each sample lot of linerboard. The data obtained at the Institute include also for each test the calculation of (1) a current mill average that represents the mean of the averages obtained on the individual sample lots of linerboard evaluated during the current period, (2) a cumulative mill average that represents the mean of the current mill averages for the previous twelve months excluding the current period, (3) a mill factor expressed in per cent that represents the ratio of the current mill average to the cumulative mill average, and (4) a mill index expressed in per cent that represents the ratio of the current mill average to the cumulative F.K.I average. The term "mean" in the preceding discussion is synonymous with the simple arithmetic average. As mentioned above, the results presented in Tables IV to XXIII also include data obtained at the mills. The mill data include for each test (1) the average result obtained on each sample lot of linerboard and (2) a current mill average (calculated at the Institute) that represents the mean of the averages obtained on the individual sample lots of linerboard. In addition to the presentations of Institute and

TABLE IV

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL A

February and March, 1962

Date Made	Finish	Mch No	Basis weight, lb					Caliper, points					Bursting Strength, p.s.i. gage					Elmendorf Tear, g./sheet In Machine					Elmendorf Tear, g./sheet Cross Machine				
			Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill	
			Max	Min.	Av	Av	Diff	Max.	Min	Av	Av	Diff	Max	Min	Av.	Av	Diff.	Max	Min	Av	Av	Diff	Max.	Min	Av	Av	Diff.
No samples submitted																										

TABLE V

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL B

No samples submitted.

TABLE VI

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL C

1-18-62	----	1	44 0	41.8	42 7	42 6	-0 1	14 0	12 8	13 3	12 6	-0 7	122	80	103	102	-1	384	272	330[a]	328	- 2	408	312	363[a]	402	+39
1-23-62	----	1	44 0	41 8	42 7	43 0	+0 3	14.0	12 5	13 4	12 8	-0 6	133	84	111	107	-4	352	232	314	319	+ 5	408	320	379[a]	399	+20
2- 1-62	----	1	44.0	41 8	43 1	43 1	0 0	14 2	12 9	13 4	12 7	-0 7	139	83	111	110	-1	384	272	311	323	+12	432	352	387[a]	390	+ 3
2-12-62	----	1	44 4	41 6	43 6	43 7	+0 1	14 0	12.7	13.5	12 5	-1 0	128	85	105	109	+4	368	272	331	305	-26	400	336	367[a]	396	+29
2-14-62	----	1	43 6	40 4	42 3	42 3	0 0	13 2	12 4	13 0	12 5	-0 5	122	80	105	106	+1	376	240	309	274	-35	384	336	363[a]	357	- 6
2-20-62	----	1	42 0	40 0	40 6	41 5	+0 9	13 5	12 0	12.8	12.2	-0 6	121	89	102	104	+2	352	240	301[a]	300	- 1	352	304	331[a]	352	+21
3- 1-62	----	1	43 2	41 8	42.2	42.3	+0 1	13 4	12 6	13 1	12 6	-0 5	127	73	102	100	-2	368	272	307	270	-37	416	288	345[a]	352	+ 7
3- 4-62	----	1	45 0	42 6	43 9	43 6	-0.3	14.4	13.2	13.9	13.4	-0.5	126	84	104	102	-2	416	280	327	283	-44	400	320	371[a]	369	- 2
Current Mill Average					42 6	42 8	+0 2			13 3	12 7	-0 6			105	105	0			316	300	-16			363	377	+14
Cumulative Mill Average					43.3					13.1					109					319					366		
Mill Factor, %					98.4					101.5					96 3					99 1					99.2		
Mill Index, %					99 1					105.6					94.6					97.2					98.1		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note All "current mill average" data are calculated from the totals of the individual readings

TABLE VII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL D

February and March, 1962

Date Made	Finish	Mch No	Basis Weight, lb					Caliper, points					Bursting Strength, lbs./sq. in. gage					Elmendorf Tear, g./sheet In Machine					Elmendorf Tear, g./sheet Cross Machine				
			Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill	
			Max	Min	Av	Av	Diff	Max	Min	Av	Av	Diff	Max.	Min.	Av.	Av	Diff	Max	Min	Av	Av	Diff	Max	Min	Av	Av	Diff
1-23-62	W F	2	44 0	43 0	43 6	43 8	-0 2	12 9	11 9	12 5	12 2	-0 3	135	85	112	108	-4	368	296	328	311	-17	432	352	395[a]	389	- 6
1-24-62	F	2	44 0	43 0	43 3	44 1	+0 8	13 2	11 9	12 5	12 3	-0 2	135	91	114	107	-7	368	280	315[a]	322	+ 7	432	352	393[a]	362	-31
2- 6-62	W F	2	44 2	42 6	43 8	43 8	0 0	13 1	12 4	12 7	12 4	-0 3	134	85	114	111	-3	352	288	309[a]	295	-14	400	352	376[a]	382	+ 6
2- 7-62	W F	2	44 0	42 6	43 6	43 3	-0 3	12 5	11 9	12 2	12 0	-0 2	135	100	122	119	-3	400	304	339[a]	310	-29	424	368	398[a]	385	-13
2-26-62	W F	2	44 2	43 4	43 9	43 6	-0 3	14 0	13 0	13 6	13 1	-0.5	127	86	105	106	+1	368	272	327	331	+ 4	432	336	378[a]	380	+ 2
2-28-62	W F	2	44 2	43 6	43 9	43 4	-0 5	14 0	13 1	13 5	13.0	-0 5	138	86	106	107	+1	368	296	334	327	- 7	448	352	399[a]	371	-28
3- 7-62	W F	2	44 2	43 8	44 0	44 0	0 0	13 3	12 2	12 9	12 9	0 0	127	97	116	114	-2	368	240	300	316	+16	464	352	392[a]	365	-27
3- 9-62	W F	2	44 8	42 0	43 8	43 4	-0 4	13 2	12 6	13 0	12 9	-0 1	140	90	113	114	+1	384	288	340[a]	322	-18	424	320	368[a]	361	- 7
Current Mill Average					43 7	43 7	0 0			12 9	12 6	-0 3			113	111	-2			324	317	- 7			387	374	-13
Cumulative Mill Average					43 4					12 5					114					322					381		
Mill Factor, %					100 7					103 2					99 1					100 6					101 6		
Mill Index, %					101 6					102 4					101 8					99 7					104 6		

TABLE VIII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL E

No samples submitted

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit

Note All "current mill average" data are calculated from the totals of the individual readings

TABLE IX

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL F

February and March, 1962

Date Made	Finish	Mch No	Basis Weight, lb					Caliper, points					Bursting Strength, p s i gage					Elmendorf Tear, g /sheet In Machine					Elmendorf Tear, g./sheet Cross Machine				
			Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill	
			Max	Min	Av	Av	Diff	Max	Min	Av.	Av	Diff	Max	Min	Av	Av	Diff.	Max	Min	Av	Av	Diff	Max	Min	Av.	Av	Diff
1-16-62	W F	1	45 6	44 0	44 7	44 9	+0 5	12 9	12 0	12 4	12 3	-0 1	129	86	114	112	-2	368	280	319[a]	348	+29	408	352	380[a]	425	+45
1-18-62	W F	1	44 4	43 0	43 9	44 1	+0 2	13 4	12 5	12 9	12 7	-0 2	131	89	111	110	-1	328	272	305[a]	334	+29	408	352	373[a]	412	+39
1-25-62	W F.	1	44 2	42 4	43 6	43 9	+0 3	13 8	12 5	13 1	12 8	-0 3	139	89	111	113	+2	384	240	299[a]	338	+39	432	336	387[a]	414	+27
1-24-62	W F	1	43 8	42 0	43 1	43 3	+0 2	13 2	12 1	12 8	12 7	-0 1	127	88	106	108	+2	312	240	279[a]	314	+35	336	288	315[a]	383	+68
2- 6-62	W F	1	44 0	42 0	42 9	43 3	+0 4	13 0	12 3	12 6	12 5	-0 1	127	85	110	109	-1	320	240	273[a]	316	+43	352	296	327[a]	384	+57
2- 9-62	W F	1	44 0	42 0	43 6	43 9	+0 3	13 1	12 0	12 5	12 5	0 0	134	85	113	111	-2	376	288	337[a]	375	+38	472	344	391[a]	436	+45
2-12-62	W F	1	43 0	40 0	41 6	42 3	+0 7	12 8	12 0	12 2	12 2	0 0	127	98	111	110	-1	352	240	301[a]	322	+21	392	336	362[a]	397	+35
2-14-62	W F.	1	42.4	41 0	41 8	42 1	+0 3	12 4	11 4	11 9	12 0	+0 1	121	97	110	110	0	344	224	267[a]	309	+42	376	312	338[a]	364	+26
2-17-62	W F	1	43 6	42 2	42 9	43 3	-0 4	13 0	12 0	12 3	12 3	0 0	142	83	111	114	+3	368	256	303[a]	332	+29	416	320	356[a]	399	+43
2-22-62	W F	1	44 0	42 0	43 1	43 5	+0 4	13 8	12 1	12 9	12 7	-0.2	125	93	108	108	0	360	248	294[a]	326	+32	368	304	341[a]	385	+44
2-23-62	W F	1	44 6	43 4	43 9	44 2	+0 3	13 7	12 6	13 0	12 7	-0 3	142	85	111	111	0	360	256	293[a]	338	+45	400	336	375[a]	405	+30
2- 8-62	W F.	1	44 4	43 4	44 0	44 4	+0 4	13 5	12 4	12 9	12 8	-0 1	129	88	109	112	+3	344	256	297	334	+37	416	336	365[a]	403	+38
3- 7-62	W F.	1	43 0	41 0	42 0	42 7	+0 7	12 9	12 0	12 2	12 3	+0 1	125	84	105	111	+6	304	208	269	312	+43	368	288	331[a]	383	+52
3- 9-62	W F	1	44 0	42 0	43 6	43.7	+0.1	13 3	12 0	12 5	12 6	-0 1	128	90	111	114	+3	360	256	302	334	+32	384	320	349[a]	398	+49
3-10-62	W F	1	44 0	41.8	42 6	43 1	+0 5	13 4	12 3	12 8	12 8	0 0	122	86	108	111	+3	336	232	277	337	+60	368	336	349[a]	378	+29
3-12-62	W F	1	44 0	42 0	43 0	43 3	+0 3	13 3	12 2	12.8	12 9	+0 1	130	86	107	109	+2	352	256	295[a]	324	+29	368	304	343[a]	369	+26
Current Mill Average					43 1	43 5	+0 4			12 6	12 6	0 0			110	111	-1			294	331	+37			355	396	+41
Cumulative Mill Average					43 1					12 4					110					301					360		
Mill Factor, %					100 0					101 6					100 0					97 7					98 6		
Mill Index, %					100 2					100 0					99 1					90.5					95 9		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit

Note All "current mill average" data are calculated from the totals of the individual readings.

TABLE V

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL G

February and March, 1962

Date Made	Finish	Mach No	Basis Weight, lb					Caliper, Points					Bursting Strength psi gage					Elmendorf Tear, g./sheet In Machine					Elmendorf Tear, g./sheet Cross Machine				
			Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill	
			Max	Min	Av	Av	Diff	Max	Min	Av	Av	Diff	Max	Min	Av	Av	Diff	Max	Min	Av	Av	Diff	Max	Min	Av	Av	Diff
1- 7-62	B	-	44 2	42 6	43 6	43 0	-0 6	13 8	12 5	13 1	12 9	-0 2	122	84	104	103	-1	408	312	357[a]	405	-48	416	336	393[a]	440	+47
1-28-62	B	-	44 4	43 0	43 8	42 9	-0 9	13 1	11 5	12 5	12 5	0 0	135	99	118	109	-9	384	280	351[a]	408	+57	480	384	408[a]	425	+17
1-30-62	B	-	44 2	42 2	43 4	42 8	-0 6	13 1	11 7	12 6	12 5	-0.1	138	97	112	108	-4	384	312	350[a]	376	+26	472	352	399[a]	420	+21
1-23-62	B	-	43 8	42 0	42 8	42 4	-0 4	13 3	12 3	12 9	12 4	-0 5	127	92	109	105	-4	416	264	364[a]	392	+28	480	304	385[a]	444	+59
1-17-62[b]	B	-	44.2	43 0	43 8	43 4	-0 4	13 2	12 5	12 8	12 9	+0 1	135	86	110	111	+1	448	312	367[a]	385	+18	432	376	403[a]	435	+32
1-14-62[c]	B	-	45 0	43 6	44 1	43 4	-0 7	13 9	12 8	13 2	12 5	-0 7	129	87	113	110	-3	416	320	375[a]	395	-20	432	352	401[a]	437	+36
2-14-62	B	-	44 0	43 0	43 8	43 3	-0 5	13 7	13 0	13 3	13 0	-0 3	126	85	105	107	+2	448	344	384[a]	408	+24	528	400	445[a]	461	+16
Current Mill Average					43 6	43 0	-0 6			12 9	12 7	-0 2			110	108	-2			364	396	+32			405	437	+32
Cumulative Mill Average					43 5					12 7					111					369					409		
Mill Factor					100 2					101 6					99 1					98 6					99 0		
Mill Index					101 4					102 4					99 1					112 0					109 5		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit

[b]This date appeared on the sample received by the Institute The mill data sheet gives the date of manufacture as February 14, 1962 The sample was marked Reel 10.

[c]This date appeared on the sample received by the Institute The mill data sheet gives the date of manufacture as January 17, 1962 The sample was marked Reel 6

Note All "current mill average" data are calculated from the totals of the individual readings.

TABLE XI

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL H

February and March, 1962

Date Made	Finish	Mach No	Basis Weight, lb					Caliper, points					Bursting Strength, p s i gage					Elmendorf Tear, g /sheet In Machine					Elmendorf Tear, g /sheet Cross Machine				
			Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill	
			Max	Min	Av	Av	Diff	Max	Min	Av	Av	Diff	Max	Min	Av.	Av	Diff	Max	Min	Av.	Av	Diff	Max	Min	Av.	Av	Diff
1-23-62	MFIS	1	43 0	41 0	42 9	42 3	+0 4	13 0	11 2	12.0	12 1	+0 1	130	103	114	108	-6	360	264	299[a]	336	-37	400	320	360[a]	418	-58
2- 1-62	MFIS	1	42 0	40 0	41 6	42 7	+1 1	13 0	11 5	12.0	12 2	+0 2	133	91	114	110	-4	312	240	275	308	+33	392	320	354[a]	388	+34
2-16-62	MFIS	1	44 0	42 0	42 7	43 1	+0 4	13 9	12.4	13 0	13 0	0.0	127	88	112	112	0	352	272	307[a]	329	+22	448	344	385[a]	415	+30
2-20-62	MFIS	1	42 0	41 0	41 9	42 2	+0.3	12 9	11 5	12 1	12 1	0 0	126	90	110	108	-2	304	248	283[a]	331	+48	400	312	348[a]	415	+67
2-26-62	MFIS	1	43 0	41 0	42 0	42 8	+0 8	13 1	12 0	12 5	12 7	+0 2	136	88	108	106	-2	352	264	297	308	+11	416	296	363[a]	393	+30
3- 6-62	MFIS	1	44 0	42 2	43 1	42 6	+0 5	13 1	12 1	12 8	12 3	+0 5	137	90	113	113	0	344	240	295	325	+30	432	352	386[a]	389	+ 3
Current Mill Average					42 2	42 6	+0 4			12 4	12 4	0 0			112	109	-3			293	323	+30			366	403	+37
Cumulative Mill Average					42 7					12 6					112					318					382		
Mill Factor, %					98 8					98 4					100 0					92 1					95 8		
Mill Index, %					98 1					98 4					100 9					90 2					98 9		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit

Note All "current mill average" data are calculated from the totals of the individual readings

TABLE XII

SUMMARY OF INSTITUTE AND MILL DATA FOR ILL I

February and March, 1962

Date Sample	Finish	Ream No.	Basis weight, lb Institute Max	Min	Av	Mill	Diff	Caliper, points Institute Max	Min	Av	Mill	Diff	Bursting Strength Range Institute Max	Min	Av	Mill	Diff	Elmendorf Tear, g/sheet In Machine Institute Max	Min	Av	Mill	Diff	Elmendorf Tear, g./sheet Cross Machine Institute Max	Min	Av	Mill	Diff
2-29-62	FLS	2	44.0	42.0	42.7	43.0	-0.3	13.0	12.0	12.3	12.5	-0.2	141	93	120	118	+2	384	272	317[a]	320	-3	384	320	345[a]	400	-55
3- 1-62	FLS	2	43.6	42.4	43.0	43.2	-0.2	13.5	12.9	13.1	12.8	+0.3	139	93	117	114	+3	352	256	296[a]	292	+4	376	304	331[a]	352	-21
3- 7-62	FLS	2	44.2	42.6	43.5	44.0	-0.5	13.5	12.-	13.0	12.4	+0.6	121	94	111	118	+7	392	280	327[a]	294	+33	368	320	343[a]	379	+36
3-12-62	FLS	2	44.0	42.0	42.9	43.0	-0.1	13.0	12.0	12.4	12.7	-0.3	132	88	116	120	+2	392	288	335[a]	337	+2	376	320	355[a]	408	-53
3-17-62	FLS	2	43.0	42.0	42.3	43.6	-1.3	12.8	13.0	13.2	13.3	-0.1	150	107	121	124	+7	344	248	284[a]	290	+7	360	320	349[a]	339	+10
3- 5-62	FLS	2	43.6	41.0	42.4	42.6	-0.4	13.3	12.8	13.0	12.7	+0.3	128	98	115	117	-2	320	232	275[a]	287	-12	360	320	340[a]	383	+43
3- 9-62	FLS	2	42.4	41.6	42.0	42.7	-0.7	13.1	12.5	12.9	12.6	+0.3	140	87	109	105	+4	352	248	295	338	-43	384	320	344[a]	397	-53
3-15-62	FLS	2	43.4	41.8	42.4	42.4	0.0	13.1	12.9	13.0	12.7	+0.3	140	87	110	110	0	304	240	269	293	-24	376	320	349[a]	394	-45
3-18-62	FLS	2	44.0	42.0	42.5	43.2	-0.7	13.7	12.0	13.0	12.3	+0.7	143	90	112	112	0	336	240	287[a]	31-	-44	400	336	358[a]	433	-75
Current Mill Average					42.6	43.1	+0.5			12.9	12.7	+0.2			115	115	0			29-	[illegible]	-[illegible]			346	387	-41
Cumulative Mill Average					42.4					13.2					112					309					346		
Mill Factor, %					100.5					97.7					102.7					9[illegible]					100.0		
Mill Index					99.1					102.4					103.6					-[illegible]					93.5		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit

Note: All "current mill average" data are calculated from the totals of the individual readings

TABLE XIII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL J

February and March, 1962

Date Made	Finish	Mch No	Basis weight, lb.					Caliper, points					Bursting Strength, p s i gage					Elmendorf Tear, g /sheet In Machine					Elmendorf Tear, g /sheet Cross Machine				
			Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill	
			Max	Min	Av	Av	Diff	Max	Min	Av.	Av	Diff.	Max	Min	Av	Av.	Diff.	Max	Min.	Av	Av	Diff.	Max.	Min	Av	Av	Diff.
1-16-62	WFLS	2	44 0	42 0	43 3	43.4	+0.1	14.0	12.9	13 6	13 3	-0 3	131	102	116	115	-1	368	272	329[a]	339	+10	448	384	411[a]	459	+48
1-19-62	----	2	43 0	41 0	42 1	42.2	+0 1	14 0	12.5	13 6	13 1	-0.5	123	82	104	104	0	352	272	315[a]	357	+42	424	320	373[a]	417	+44
1-28-62	WFLS	2	43.6	42 0	42 5	42 2	-0 3	14 0	13.0	13.5	13 0	-0.5	141	90	116	107	-9	352	288	310[a]	339	+29	448	384	408[a]	434	+26
1-31-62	WFLS	2	44 0	42 0	43 1	43.1	0.0	13.9	13 0	13.4	13 0	-0 4	133	92	111	106	-5	360	240	313	345	+32	424	336	377[a]	469	+92
2- 3-62	WFLS	2	44 0	43 0	43 6	43 3	-0.3	14 0	13 4	13 8	13 3	-0.5	136	86	111	109	-2	344	240	310[a]	317	+ 7	448	352	397[a]	388	- 9
2- 4-62	WFLS	2	44 0	42.0	43 1	43 7	+0 6	14.1	13.2	13 8	13.7	-0.1	138	89	111	109	-2	384	272	313[a]	352	+39	448	336	377[a]	437	+60
2-15-62	----	2	44 0	43 0	43.3	42 6	-0 7	13 8	13 0	13 2	13 0	-0.2	128	86	106	107	+1	344	272	316[a]	325	+ 9	408	368	383[a]	421	+38
2-18-62	WFLS	2	44.2	42 0	43 2	42 4	-0 8	14 0	13.2	13 6	13 5	-0 1	126	84	106	105	-1	352	256	315	322	+ 7	416	320	367[a]	401	+34
2-25-62	WFLS	2	44.0	42 0	43 2	42 3	-0 9	14.0	12 9	13 4	12 8	-0.6	135	88	109	118	+9	384	288	331	340	+ 9	456	352	400[a]	427	+27
Current Mill Average					43 0	42 8	-0.2			13.5	13 2	-0 3			110	109	-1			317	337	+20			388	428	+40
Cumulative Mill Average					43 0					13 1					111					331					375		
Mill Factor, %					100.0					103 1					99 1					95 8					103.5		
Mill Index, %					100 0					107.1					99.1					97 5					104 9		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit

Note All "current mill average" data are calculated from the totals of the individual readings.

TABLE XIV

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL K

February and March, 1962

Date Made	Finish	Mch. No	Basis Weight, lb					Caliper, points					Bursting Strength, p s i gage					Elmendorf Tear, g /sheet In Machine					Elmendorf Tear, g./sheet Cross Machine				
			Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill	
			Max	Min	Av.	Av.	Diff	Max	Min	Av	Av	Diff	Max	Min	Av.	Av	Diff	Max	Min	Av	Av	Diff	Max.	Min.	Av.	Av.	Diff.
1-15-62	W F	1	43 2	42 0	42 6	43.2	+0 6	12.2	11.3	11 9	11 8	-0 1	129	96	112	112	0	336	256	299[a]	311	+12	352	304	328[a]	342	+14
1-15-62	W F	1	42 4	42 0	42 1	43 3	+1.2	12 2	11 5	11 8	11 7	-0 1	123	92	109	110	+1	336	256	296[a]	327	+31	384	296	332[a]	357	+25
1-15-62	W F	1	44 0	42 0	42 8	43.2	+0 4	12 3	11 4	11 9	11 6	-0 3	125	100	110	112	+2	344	224	295[a]	324	+29	400	304	344[a]	355	+11
2- 0-62	W F	2	43 8	41 8	42 6	42 2	-0.4	12.5	11 2	12 0	11 6	-0.4	120	83	108	111	+3	336	232	284	316	+32	384	312	338[a]	365	+27
2- 9-62	W F	2	43 6	42 0	42 7	42 6	-0 1	12 2	11 2	11 8	11 8	0 0	125	84	107	110	+3	352	256	285[a]	309	+24	360	312	333[a]	364	+31
2-27-62	W F.	1	42 6	42 0	42 3	42 8	+0 5	12.2	11 4	12.0	11 8	-0 2	130	91	113	113	0	368	248	305[a]	320	+15	424	320	355[a]	361	+ 6
2-27-62	W F	1	43 6	42 0	42.4	42 9	+0 5	12.2	11 7	12 0	11 8	-0.2	131	101	115	114	-1	368	272	309	341	+32	368	320	349[a]	362	+13
3-15-62	W F	1	43 8	42 4	43.2	43 4	+0 2	12 8	12 0	12 3	11 9	-0 4	132	101	115	115	0	352	272	311[a]	333	+22	352	304	339[a]	356	+17
3-15-62	W F	1	44 0	43 0	43.7	43 5	-0 2	12 7	11 8	12 2	12 0	-0 2	130	88	111	114	+3	320	272	293[a]	313	+20	384	320	346[a]	370	+24
Current Mill Average					42 7	43.0	+0.3			12 0	11 8	-0 2			111	112	+1			297	322	+25			340	359	+19
Cumulative Mill Average					43 0					12 1					116					312					352		
Mill Factor, %					99 3					99 2					95 7					95 2					96.6		
Mill Index, %					99 3					95.2					100 0					91.4					91.9		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note All "current mill average" data are calculated from the totals of the individual readings

TABLE XV

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL L

February and March, 1962

Date Made	Finish	Mch No	Basis Weight, lb					Caliper, points					Bursting Strength, p s i gage					Elmendorf Tear, g./sheet In Machine					Elmendorf Tear, g./sheet Cross Machine				
			Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill	
			Max	Min	Av	Av	Diff	Max	Min	Av	Av	Diff	Max	Min	Av	Av	Diff	Max	Min	Av	Av	Diff.	Max.	Min	Av.	Av	Diff.
12-23-61	F	1	45 0	42 4	43 8	43.7	-0 1	13 0	11 9	12 3	12 3	0 0	126	89	108	107	-1	336	240	290[a]	293	+ 3	416	312	360[a]	355	- 5
1- 8-62	F	1	45 6	43 6	44 2	43 8	-0 4	13 6	12 3	12 8	12 7	-0 1	143	87	111	107	-4	336	240	292[a]	279	-13	400	320	359[a]	374	+15
1-17-62	F	1	45 6	42 8	44 3	43 8	-0 5	13 4	12 0	12.6	12 6	0 0	128	90	107	108	-1	336	240	285	270	-15	384	336	363[a]	357	- 6
2- 8-62	F	1	44 4	41 6	43.4	43 0	-0 4	13 0	12 0	12 5	12 1	-0 4	128	85	108	110	-2	384	272	313[a]	285	-28	368	312	341[a]	367	+26
2-15-62	F	1	44 4	42 0	43 4	42 8	-0 6	12 8	11 5	12 2	12 8	-0 4	140	90	111	116	-5	328	208	265	241	-24	432	304	356[a]	333	-23
2-19-62	F	1	46 0	43 0	44 5	43 6	-0.9	13 5	12.4	12 9	12 6	-0 3	135	85	112	114	+2	336	240	290	277	-13	400	336	371[a]	375	+ 4
3- 1-62	F	1	44 2	42 0	43 4	43 1	-0.3	12 6	11 8	12 2	12 1	-0 1	130	90	115	112	-3	312	232	281[a]	281	0	376	296	335[a]	348	+13
3- 5-62	F	1	45 6	42 6	44 1	43 7	-0 4	13 8	12 2	12 9	12 6	-0 3	138	87	112	112	0	344	240	281	279	- 2	440	328	365[a]	373	+ 8
3-12-62	F	1	44 4	41 8	43 6	43 0	-0 6	12 8	12 0	12 2	12 0	-0 2	136	90	111	110	-1	344	256	302	272	-30	360	320	337[a]	352	+15
Current Mill Average					43 8	43 4	-0 4			12 5	12.3	-0 2			111	111	0			289	275	-14			354	359	+ 5
Cumulative Mill Average					43 3					12 7					111					292					348		
Mill Factor %					101 2					98 4					100 0					99 0					101 7		
Mill Index %					101 9					99 2					100 0					88 9					95 7		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit

Note All "current mill average" data are calculated from the totals of the individual readings

TABLE XVI

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL W

February and March, 1962

Date Made	Finish	Wen No	Basis Weight, lb					Caliper, points					Bursting Strength, p s i gage					Elmendorf Tear, g./sheet In Machine					Elmendorf Tear, g./sheet Cross Machine				
			Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill	
			Max	Min	Av	Av	Diff	Max	Min	Av	Av	Diff	Max	Min	Av	Av	Diff	Max	Min	Av.	Av	Diff	Max	Min.	Av.	Av	Diff
1-24-62	W B	-	43 0	41 0	42 2	42 0	-0 2	12 2	11.5	11 9	11 4	-0 5	129	85	106	110	+4	408	328	365[a]	299	-66	424	368	393[a]	365	-28
2-10-62	W B	-	44 2	42 0	42 9	42 0	-0 9	12 4	11 5	11 9	11 4	-0.5	123	91	111	112	+1	400	296	356[a]	303	-53	448	376	413[a]	353	-60
2-20-62	W B	-	44 0	41 6	42 9	42 5	-0.4	12 2	11 0	11 7	11 3	-0.4	126	97	113	108	-5	384	288	362[a]	313	-49	408	336	386[a]	380	- 6
2-21-62	W B	-	43 8	42 0	42 8	42 8	0 0	12 5	11 5	12 1	11 6	-0.5	130	86	111	110	-1	440	320	365[a]	331	-34	440	352	387[a]	376	-11
3- 5-62	W B	-	43 8	42 2	43 2	42 5	-0 7	12 2	11 2	11 7	11.1	-0 6	126	87	106	106	0	400	312	358	328	-30	448	368	397[a]	384	-13
3-12-62	W B	-	44 0	42 4	43 3	42 7	-0 6	12 9	11 9	12 3	11 9	-0 4	120	80	102	107	+5	400	320	349[a]	332	-17	416	352	386[a]	383	- 3
3-14-62	W B	-	43 6	42 0	42 7	42 2	-0 5	13 0	12 0	12 2	12 0	-0 2	122	84	109	108	+1	384	328	361[a]	335	-26	400	352	385[a]	373	-12
Current Mill Average					-2 9	42 4	-0 5			12 0	11 5	-0 5			108	109	-1			359	320	-39			393	374	-19
Cumulative Mill Average					42 9					12 1					109					363					404		
Mill Factor, %					100 0					99 2					99 1					98 9					97 3		
Mill Index, %					99 8					95 2					97 3					110.5					106 2		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit

Note All "current Mill average" data are calculated from the totals of the individual readings

TABLE XVII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL N

February and March, 1962

Date Made	Finish	Mch. No.	Basis Weight, lb.					Caliper, points					Bursting Strength, p.s.i. gage					Elmendorf Tear, g./sheet In Machine					Elmendorf Tear, g./sheet Cross Machine				
			Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill	
			Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.
2- 1-62	WFlS	1	46.2	44.2	45.4	44.9	-0.5	13.2	12.2	12.8	12.7	-0.1	131	88	108	109	+1	384	280	329[a]	---	---	448	352	403[a]	---	---
2- 2-62	WFlS	1	44.4	42.2	43.8	43.4	-0.4	13.5	12.5	13.1	12.9	-0.2	123	97	107	103	-4	368	288	331[a]	---	---	416	352	385[a]	---	---
2- 2-62	WFlS	2	43.8	41.8	43.0	42.6	-0.4	12.8	12.0	12.4	12.3	-0.1	128	87	112	110	-2	416	320	367[a]	---	---	472	400	426[a]	---	---
2- 5-62	WFlS	2	44.2	40.4	42.2	42.0	-0.2	12.8	11.9	12.2	12.2	0.0	137	87	109	108	-1	416	320	367[a]	---	---	440	368	398[a]	---	---
3- 6-62	WFlS	2	45.0	43.0	43.8	43.4	-0.4	13.0	12.0	12.7	12.7	0.0	127	86	109	114	+5	432	304	357[a]	---	---	464	384	417[a]	---	---
3- 7-62	WFlS	1	45.0	43.0	43.4	43.2	-0.2	13.3	12.7	13.0	13.0	0.0	126	87	107	106	-1	432	304	358[a]	---	---	432	368	407[a]	---	---
3- 8-62	----	1	43.0	41.0	42.2	42.2	0.0	12.9	12.0	12.5	12.4	-0.1	119	86	98	104	+6	400	320	348[a]	---	---	416	352	389[a]	---	---
Current Mill Average:					43.4	43.1	-0.3			12.7	12.6	-0.1			107	108	+1			351					404		
Cumulative Mill Average:					43.3					12.6					105					359					399		
Mill Factor, %					100.2					100.8					101.9					97.8					101.3		
Mill Index, %					100.9					100.8					96.4					108.0					109.2		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XVIII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL O

February and March, 1962

Date Made	Finish	Mach No	Basis Weight, lb					Caliper, points					Bursting Strength, p.s.i. gage					Elmendorf Tear g./sheet In Machine					Elmendorf Tear, g./sheet Cross Machine				
			Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill	
			Max	Min	Av	Av	Diff	Max	Min	Av.	Av	Diff	Max.	Min.	Av.	Av	Diff	Max	Min	Av	Av	Diff	Max	Min	Av.	Av	Diff
1-15-62	W F	3	44 4	43 6	44 1	44 4	-0 3	12 2	11 9	12 1	12 0	-0 1	134	89	115	115	0	376	312	345[a]	361	+16	424	344	394[a]	436	-42
2- 0-62	W F	3	44 2	43 6	43 9	44 5	+0 6	12 8	11 9	12 3	12 0	-0 3	140	81	113	114	+1	376	328	359	332	-27	480	336	410[a]	397	-13
2-20-62	W F	3	44 0	43 8	44 0	44 5	+0 5	12 5	11 8	12 2	12 0	-0 2	140	87	112	111	-1	344	296	327	348	+21	432	352	383[a]	431	-48
2-25-62	W F	3	44 0	42 4	43 3	44 6	+1 3	13 0	12 0	12 4	12 0	-0 4	134	84	105	111	+6	352	272	323	356	+33	408	320	382[a]	432	+50
Current Mill Average					43 8	44.5	-0 7			12.2	12 0	-0 2			111	113	+2			338	349	-11			392	424	+32
Cumulative Mill Average					43 7					12 0					109					336					382		
Mill Factor, %					100.2					101 7					101 8					100 0					102 6		
Mill Index, %					101 9					96 8					100 0					104 0					105 9		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note All "current mill average" data are calculated from the totals of the individual readings

TABLE VIX

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL F

February and March, 1962

Date ade	Finish	Mch No	Basis Weight, lb					Caliper, points					Bursting Strength, p s.i gage					Elmendorf Tear, g./sheet In Machine					Elmendorf Tear, g./sheet Cross Machine				
			Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill	
			Max	Min.	Av	Av	Diff	Max	Min	Av.	Av	Diff	Max.	Min	Av.	Av	Diff	Max	Min.	Av.	Av	Diff	Max.	Min	Av	Av	Diff.
12- 4-61	WFlS	1	43 2	42 0	42.5	42 4	-0 1	14 0	12 9	13 5	13 1	-0.4	128	93	113	105	- 8	336	248	303[a]	309	+ 6	416	312	359[a]	348	-11
1-25-62	WFlS	1	44 0	43.0	43 6	42 8	-0.8	14 0	12 8	13 3	12.9	-0 4	133	94	111	107	- 4	384	272	341[a]	335	- 6	432	352	389[a]	381	- 8
2- 1-62	WFlS	1	43 8	42 4	43 3	43 3	0 0	14 1	12 7	13 4	12.9	-0.5	133	95	124	104	-10	384	288	329[a]	288	-41	416	336	376[a]	364	-12
2- 2-62	WFlS	1	43 4	41 6	42 5	42.5	0 0	12.5	11 0	11 7	11 7	0 0	139	105	119	118	- 1	400	280	333	317	-16	384	328	351[a]	349	- 2
2-13-62	WFlS	1	43 0	41 8	42 3	43 2	+0 9	13 5	12 1	13 0	12.7	-0.3	129	97	112	110	- 2	384	280	315[a]	317	+ 2	392	336	367[a]	373	+ 6
2-14-62	WFlS	1	43 8	42 0	42 9	42 9	0.0	13.5	12 9	13 1	12.6	-0 5	132	95	112	111	- 1	368	272	309	316	+ 7	400	320	359[a]	368	+ 9
Current Mill Average					42 8	42 8	0 0			13 0	12.6	-0.4			114	109	- 5			322	314	- 8			367	364	- 3
Cumulative Mill Average					42 7					13 4					111					323					365		
Mill Factor, %					100 2					97 0					102 7					99.7					100 5		
Mill Index, %					99 5					103.2					102.7					99 1					99 2		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit

Note All "current mill average" data are calculated from the totals of the individual readings

TABLE XX

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL Q

February and March, 1962

Date Made	Finish	Mch. No.	Basis Weight, lb. Institute Max.	Min.	Av.	Mill Av.	Diff.	Caliper, points Institute Max.	Min.	Av.	Mill Av.	Diff.	Bursting Strength, p.s.i. gage Institute Max.	Min.	Av.	Mill Av.	Diff.	Elmendorf Tear, g./sheet In Machine Institute Max.	Min.	Av.	Mill Av.	Diff.	Elmendorf Tear, g./sheet Cross Machine Institute Max.	Min.	Av.	Mill Av.	Diff.
1-12-62	W.F.	-	44.0	42.0	42.4	42.6	+0.2	12.9	11.4	12.0	12.3	+0.3	137	100	117	107	-10	368	304	337[a]	353	-16	400	320	367[a]	383	-16
1-12-62	W.F.	-	43.8	41.8	42.4	43.0	+0.6	13.1	11.8	12.2	12.2	0.0	142	98	119	105	-14	416	320	371[a]	364	- 7	400	352	379[a]	377	- 2
2- 6-62	W.F.	-	43.6	40.8	42.3	42.4	+0.1	13.0	11.2	12.4	12.4	0.0	129	95	113	107	- 6	400	296	333	339	- 6	416	320	356[a]	384	+28
2- 6-62	W.F.	-	42.8	42.0	42.3	42.9	+0.6	13.0	11.0	12.3	12.4	+0.1	141	95	112	106	- 6	376	280	320[a]	341	+21	400	328	365[a]	375	+10
2-20-62	W.F.	-	42.2	40.8	41.9	41.8	-0.1	12.9	11.9	12.3	11.7	-0.6	128	96	110	106	- 4	352	288	322	338	+16	384	320	343[a]	374	+31
2-20-62	W.F.	-	42.4	41.4	41.9	41.7	-0.2	12.8	11.9	12.2	12.4	+0.2	131	90	111	107	- 4	416	288	340[a]	353	-13	392	336	361[a]	402	+41
Current Mill Average:					42.2	42.4	+0.2			12.2	12.2	0.0			114	106	- 8			337	348	+11			362	383	+21
Cumulative Mill Average:					43.0					12.3					113					345					361		
Mill Factor, %					98.1					99.2					100.9					97.7					100.3		
Mill Index, %					98.1					96.8					102.7					103.7					97.8		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XXI

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL S

February and March, 1962

Date Made	Finish	Roll No	Basis eight, lb					Caliper, points					Bursting Strength, p s i gage					Elmendorf Tear, g./sheet In Machine					Elmendorf Tear, g /sheet Cross Machine				
			Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill	
			Max	Min	Av	Av	Diff	Max	Min	Av	Av	Diff	Max	Min	Av	Av.	Diff	Max	Min	Av	Av	Diff	Max	Min	Av.	Av	Diff
2-13-62[b]	AWIS	1	43 0	42 0	42 3	42 1	-0 2	13 0	12 1	12 7	12 4	-0.3	130	108	119	124	+5	288	240	257	264	+ 7	336	272	311[a]	334	+23
2-16-62	AWIS	1	43 0	42 0	42 3	42 2	-0 1	14 5	13 2	14 0	13 6	-0 4	131	101	114	119	+5	320	240	289[a]	298	+ 9	376	320	341[a]	365	+24
Current Mill average					42 3	42 2	-0 1			13 3	13 0	-0 3			116	121	+5			273	281	+ 8			326	350	+24
Cumulative Mill Average					42 4					13 1					119					284					342		
Mill Factor, %					99 8					101 5					97 5					96 1					95 3		
Mill Index, %					98 4					105 6					104 5					84 0					88.1		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit

[b]This date appeared on the sample received by the Institute The mill data sheet gives the date of manufacture as February 7, 1962

Note All "current mill average" data are calculated from the totals of the individual readings

TABLE XXII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL T

February and March, 1962

Date Made	Finish	Mch No	Basis weight, lb					Caliper, points					Bursting Strength, p s i. gage					Elmendorf Tear, g /sheet In Machine					Elmendorf Tear, g /sheet Cross Machine				
			Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill	
			Max	Min.	Av	Av	Diff.	Max.	Min	Av	Av	Diff	Max	Min	Av.	Av	Diff	Max	Min.	Av.	Av.	Diff	Max	Min	Av.	Av	Diff
2- 1-62	W F	-	43 0	42 0	42 4	42 3	-0 1	12 8	11.2	12.2	12.0	-0.2	136	98	118	110	-8	320	272	301[a]	280	-21	368	320	341[a]	320	-21
2- 2-62	W F	-	43.0	41 8	42 5	42 8	+0 3	13 0	12 2	12 7	12 5	-0.2	133	87	108	109	+1	368	272	316[a]	296	-20	392	344	366[a]	356	-10
2- 9-62	W F	-	44 0	42 6	43.4	43 7	+0 3	13 6	12 9	13 1	13 0	-0.1	140	105	121	113	-8	360	296	327[a]	329	+ 2	400	328	357[a]	353	- 4
2-16-62	W F	-	44 4	42 4	43.8	43.9	+0.1	12.8	12.1	12 4	12.2	-0.2	130	103	118	118	0	368	288	325[a]	300	-25	400	328	362[a]	356	- 6
3- 1-62	W F	-	43 0	41 8	42 4	42 8	+0 4	12.8	11.9	12 2	11.9	-0.3	133	94	117	122	+5	392	296	326[a]	308	-18	392	312	365[a]	344	-21
3- 2-62	W F	-	43.0	42 0	42 6	42 9	+0.3	12 5	12 0	12 2	11.8	-0.4	133	98	118	114	-4	336	256	307	285	-22	384	320	352[a]	344	- 8
3- 9-62	W F	-	43 6	42 2	42.8	42 9	+0 1	13.0	12 9	12 3	11 9	-0 4	145	108	125	131	+6	336	272	304[a]	294	-10	432	336	371[a]	360	-11
3-16-62	W F	-	42 8	42.2	42 4	42 6	+0.2	13 1	12.2	12.6	12 1	-0.5	136	97	114	114	0	392	272	331	321	-10	384	320	347[a]	348	+ 1
Current Mill Average					42 8	43 0	+0.2			12 5	12.2	-0.3			117	116	-1			317	302	-15			358	348	-10
Cumulative Mill Average					42 9					12 6					116					319					353		
Mill Factor, %					99 8					99.2					100.9					99 4					101 4		
Mill Index, %					99 5					99.2					105.4					97 5					96 8		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit

Note All "current mill average" data are calculated from the totals of the individual readings

TABLE XXIII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL B

February and March, 1962

Date Made	Finish	Test No.	Basis Weight, lb — Institute Max	Min	Av	Mill Av	Diff	Caliper, points — Institute Max	Min	Av	Mill Av	Diff	Bursting Strength, p s i average — Institute Max	Min	Av	Mill Av	Diff	Elmendorf Tear, g/sheet In Machine — Institute Max	Min	Av	Mill Av	Diff.	Elmendorf Tear, g/sheet Cross Machine — Institute Max	Min	Av	Mill Av	Diff.
1-17-62	F	1	42.4	40.4	41.9	42.0	-0.1	13.0	11.8	12.2	12.0	-0.2	125	89	110	116	+6	304	256	287[a]	239	-48	400	312	341[a]	323	-18
1-26-62	F	1	42.4	41.0	41.8	42.0	-0.2	12.5	12.0	12.1	12.1	0.0	137	89	118	117	-1	344	256	296[a]	247	-49	384	312	342[a]	333	- 9
2-2-62	F	1	42.4	41.8	42.0	42.1	-0.1	12.5	11.8	12.1	12.0	-0.1	139	91	118	112	-6	352	256	293[a]	252	-41	368	304	339[a]	328	-11
2-8-62	F	1	42.4	41.6	42.0	42.0	0.0	12.8	11.9	12.1	12.1	0.0	145	88	116	115	-1	320	240	290	248	-42	376	288	329[a]	330	+ 1
2-14-62	F	1	43.0	41.0	42.1	42.0	-0.1	12.8	12.0	12.3	12.0	-0.3	141	104	122	116	-6	320	232	291	238	-53	376	288	329[a]	323	- 6
2-22-62	F	1	42.4	41.0	41.8	42.0	-0.2	12.5	12.0	12.2	12.0	-0.2	136	85	114	111	-3	320	232	273	250	-23	368	296	327[a]	334	+ 7
3-5-62	F	1	42.4	41.8	42.1	41.7	-0.4	12.4	12.0	12.1	12.0	-0.1	135	91	115	112	-3	304	240	271	249	-22	336	288	317[a]	320	+ 3
3-12-62	F	1	42.4	41.8	42.2	41.9	-0.3	12.7	11.9	12.1	12.0	-0.1	131	80	110	112	+2	352	240	299	249	-50	360	320	337[a]	324	-13
Current Mill Average					42.0	41.9	-0.1			12.2	12.0	-0.2			115	114	-1			287	247	-40			333	327	- 6
Cumulative Mill Average					42.2					12.3					115					288					332		
Mill Factor, %					99.5					99.2					100.0					99.7					100.3		
Mill Index, %					97.7					96.8					103.6					88.3					90.0		

[a] This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit

Note All "current mill average" data are calculated from the totals of the individual readings.

mill data described above, Tables IV through XXIII also include under each test heading a column labeled "Diff." This column shows the differences between averages obtained at the Institute and those obtained at the mills. The data obtained at the Institute are used as the reference in calculating these differences.

The average test results obtained at the Institute and at the mills are summarized in Table XXIV for the current period, February and March, 1962. Shown in this table for each mill is the difference for each test between the current mill average based on Institute data and the current mill average based on mill data. In addition, for each test the maximum difference encountered in comparing Institute and mill averages for individual sample lots is shown. In Table XXV, the differences for each test between the current mill averages based on Institute data and those based on mill data shown in Table XXIV have been converted to per cent (based on Institute data as a reference). In addition, for purposes of comparison, the percentage differences from the previous bimonthly report are shown.

A summary of the agreement obtained in the comparisons of Institute and mill test data for the current period is shown in Table XXVI. This summary is based on the results given in Table XXV. The tabulated data show the number of mills, and the percentage of all mills which this number represents, whose average test results for the current period fall within designated percentages from the average test results obtained at the Institute. It may be noted from this summary that agreement between the results obtained at the Institute and those obtained at the mills was generally very good.

Preconditioning and conditioning data pertinent to the test results obtained at the mills during the current period are given in Table XXVII.

TABLE XXIV

SUMMARY OF TEST RESULT COMPARISONS (Average Mill and Institute Results)

Mills[a]	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	S	T	U
No. of samples Compared	0	0	8	8	0	16	7	6	9	9	9	9	7	7	4	6	6	2	8	8
Basis Weight																				
Institute			42.6	43.7		43.1	43.6	42.2	42.6	43.0	42.7	43.8	42.9	43.4	43.8	42.8	42.2	42.3	42.8	42.0
Mill			42.8	43.7		43.5	43.0	42.6	43.1	42.8	43.0	43.4	42.4	43.1	44.5	42.8	42.4	42.2	43.0	41.9
Av. Diff.[b]			+0.2	0.0		+0.4	-0.6	+0.4	+0.5	-0.2	+0.3	-0.4	-0.5	-0.3	+0.7	0.0	+0.2	-0.1	+0.2	-0.1
Max. Diff.[c]			+0.9	+0.8		+0.7	-0.9	+1.1	+1.3	-0.9	+1.2	-0.9	-0.9	-0.5	+1.3	+0.9	+0.6	-0.2	+0.4	-0.4
Caliper																				
Institute			13.3	12.9		12.6	12.9	12.4	12.9	13.5	12.0	12.5	12.0	12.7	12.2	13.0	12.2	13.3	12.5	12.2
Mill			12.7	12.6		12.6	12.7	12.4	12.7	13.2	11.8	12.3	11.5	12.6	12.0	12.6	12.2	13.0	12.2	12.0
Av. Diff.[b]			-0.6	-0.3		0.0	-0.2	0.0	-0.2	-0.3	-0.2	-0.2	-0.5	-0.1	-0.2	-0.4	0.0	-0.3	-0.3	-0.2
Max. Diff.[c]			-1.0	-0.5		-0.3	-0.7	-0.5	-0.7	-0.6	-0.4	-0.4	-0.6	-0.2	-0.4	-0.5	-0.6	-0.4	-0.5	-0.3
Bursting Strength																				
Institute			105	113		110	110	112	115	110	111	111	108	107	111	114	114	116	117	115
Mill			105	111		111	108	109	115	109	112	111	109	108	113	109	106	121	116	114
Av. Diff.[b]			0	-2		+1	-2	-3	0	-1	+1	0	+1	+1	+2	-5	-8	+5	-1	-1
Max. Diff.[c]			±4	-7		+6	-9	-6	+7	±9	+3	+5	±5	+6	+6	-10	-14	+5	-8	±6
Tearing Strength, in																				
Institute			316	324		294	364	293	298	317	297	289	359	351	338	322	337	273	317	287
Mill			300	317		331	396	323	309	337	322	275	320	--	349	314	348	281	302	247
Av. Diff.[b]			-16	-7		+37	+32	+30	+11	+20	+25	-14	-39	--	+11	-8	+11	+8	-15	-40
Max. Diff.[c]			-44	-29		+60	+57	+48	+44	+42	+32	-30	-66	--	+33	-41	+21	+9	-25	-53
Tearing Strength, across																				
Institute			363	387		355	405	366	346	388	340	354	393	404	392	367	362	326	358	333
Mill			377	374		396	437	403	387	428	359	359	374	--	424	364	383	350	348	327
Av. Diff.[b]			+14	-13		+41	+32	+37	+41	+40	+19	+5	-19	--	+32	-3	+21	+24	-10	-6
Max. Diff.[c]			+39	-31		+68	+59	+67	+75	+92	+31	+26	-60	--	+50	-12	+41	+24	-21	-18

[a] Comparison based on averages involved only those samples on which mill test data were submitted.
[b] Average difference is the difference between the Institute mill average and the mill average based on mill test data.
[c] Maximum difference encountered in comparing the Institute average and the mill averages for any sample submitted by that particular mill.

TABLE XXV

COMPARISON OF INSTITUTE-MILL DIFFERENCES
(Average Difference, per cent)

Mill	Period	Basis Weight	Caliper	Bursting Strength	Tear, in	Tear, across	Mill	Period	Basis Weight	Caliper	Bursting Strength	Tear, in	Tear, across
A	November	--	--	--	--	--	K	November	+0.7	-2	-2	+2	+7
	Dec.-Jan.	--	--	--	--	--		Dec.-Jan.	-0.2	-2	-2	+1	+6
	Current	--	--	--	--	--		Current	+0.7	-2	+0.9	+8	+6
B	November	--	--	--	--	--	L	November	-0.2	-2	-2	-6	+6
	Dec.-Jan.	--	--	--	--	--		Dec.-Jan.	-2	--	-0.9	-3	+3
	Current	--	--	--	--	--		Current	-0.9	-2	0	-5	+1
C	November	+0.9	-4	-2	-5	+1	M	November	-2	-4	-3	-10	-4
	Dec.-Jan.	0	-4	0	-2	+6		Dec.-Jan.	-2	-4	-0.9	-11	-5
	Current	+0.5	-5	0	-5	+4		Current	-1	-4	+0.9	-11	-5
D	November	+0.5	-0.8	-3	-0.3	+5	N	November	-0.7	-8	+3	--	--
	Dec.-Jan.	-0.5	-2	-3	0	+4		Dec.-Jan.	-0.5	-6	+2	--	--
	Current	0	-2	-2	-2	-3		Current	-0.7	-0.8	+0.9	--	--
E	November	--	--	--	--	--	O	November	--	--	--	--	--
	Dec.-Jan.	--	--	--	--	--		Dec.-Jan.	+0.7	-3	0	-7	-3
	Current	--	--	--	--	--		Current	+2	-2	+2	+3	+8
F	November	+0.2	-2	+3	+2	+4	P	November	+0.5	-4	-4	+2	+3
	Dec.-Jan.	+0.5	-0.8	+2	+5	+5		Dec.-Jan.	-0.5	-3	-3	+0.6	+1
	Current	+0.9	0	+0.9	+13	+12		Current	0	-3	-4	-2	-0.8
G	November	--	--	--	--	--	Q	November	+0.9	-0.8	-4	-7	+0.6
	Dec.-Jan.	-0.5	-3	-4	+8	+3		Dec.-Jan.	+1	-0.8	-3	-7	+2
	Current	-1	-2	-2	+9	+8		Current	+0.5	0	-7	+3	+6
H	November	+0.7	0	-5	-2	+3	S	November	+0.2	-3	+0.9	-13	+4
	Dec.-Jan.	-0.5	-2	-4	+4	+2		Dec.-Jan.	+0.5	-2	+6	+3	+4
	Current	+0.9	0	-3	+10	+10		Current	-0.2	-2	+4	+3	+7
I	November	+1	-2	0	+1	+9	T	November	+1	-4	-5	-4	-2
	Dec.-Jan.	+2	0	-2	+10	+10		Dec.-Jan.	+0.2	-3	-3	-7	-0.8
	Current	+1	-2	0	+4	+12		Current	+0.5	-2	-0.9	-5	-3
J	November	-0.2	-3	-4	+0.9	+6	U	November	+0.5	-0.8	-4	-13	+0.9
	Dec.-Jan.	-0.2	-3	0	+2	+12		Dec.-Jan.	-0.2	-0.8	-3	-13	+0.3
	Current	-0.5	-2	-0.9	+6	+10		Current	-0.2	-2	-0.9	-14	-2

TABLE XXVI

SUMMARY OF AGREEMENT BETWEEN INSTITUTE AND MILL RESULTS

	Average Percentage Difference Between Institute and Mill Test Results								
	±0.5	±1	±2	±3	±4	±5	±7.5	±10	±14
Basis weight									
Number of mills	8	16	17						
Percentage of all mills	47.1	94.1	100.0						
Caliper									
Number of mills	3	4	14	15	16	17			
Percentage of all mills	17.6	23.5	82.4	88.2	94.1	100.0			
Bursting strength									
Number of mills	3	10	13	14	16	16	17		
Percentage of all mills	17.6	58.8	76.5	82.4	94.1	94.1	100.0		
Tearing strength, in									
Number of mills	0	0	2	5	6	9	10	13	16
Percentage of all mills	0.0	0.0	12.5	31.2	37.5	56.2	62.5	81.2	100.0
Tearing strength, across									
Number of mills	0	2	3	5	6	7	10	14	16
Percentage of all mills	0.0	12.5	18.8	31.2	37.5	43.8	62.5	87.5	100.0

TABLE XXVII

PRECONDITIONING AND CONDITIONING DATA FOR MILL TESTS

Mill Code	Preconditioning			Conditioning		
	Relative Humidity, %	Temperature, °F.	Time, hr.	Relative Humidity, %	Temperature, °F.	Time, hr.
A			No samples submitted			
B			No samples submitted			
C	50	72-73	48	50	72-73	3
D	50	73	24	50	73	24
E			No samples submitted			
F	35	73	24	50	73	48
G	50	73	48	50	73	--
H		None		55-58	70-72	--
I	50	72	24		None	
J	50	70-72	120	50	70-72	120-192
K		None		50	73	24
L	36-56	52-77	0.5	50	73	24
M		None		40-48	73-74	48
N		None		50	73	168
O		None		50	73	24
P	50	70	24	50	70	24
Q		None		50	73	24
S	50	73	120	50	73	120
T	34-36	77-78	8	48-52	72-73	16
U		None		40-70	65-80	--

THE INSTITUTE OF PAPER CHEMISTRY

W. N. Hubert, Research Aide
Container Section

R. C. McKee, Chief, Container Section